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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,788	10/30/2003	Shufeng Han	16569-US	8112
30689	7590	12/07/2007	EXAMINER	
DEERE & COMPANY ONE JOHN DEERE PLACE MOLINE, IL 61265			HUGHES, DEANDRA M	
			ART UNIT	PAPER NUMBER
			3663	
			MAIL DATE	DELIVERY MODE
			12/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/696,788

Applicant(s)

HAN ET AL.

Examiner

Deandra M. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION:

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-43 is/are pending in the application.
- 4a) Of the above claim(s) 31-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed 5/17/06 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 21-30 and 41-43 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 21-30 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Froeberg (US 6,028,550 published Feb. 22, 2000) in view of Staub (US 6,236,916 published 5/22/01).

With regard to claims 21-24, 26-27, 29, and 42-43, Froeberg discloses a method of guiding a vehicle comprising:

- establishing elevation data (fig. 1 and col. 6 line 4; the data is inherently determined in order to display the data in the map) and corresponding location data (col. 6, line 5; position) for a work area (e.g. hydrographic features included in geographical region attributes; fig. 3, #41 and col. 7, lines 13-15);
- determining location data, including a particular location of a vehicle, within the work area divided into cells (fig. 3, #44; col. 8, lines 58-68; note phrase "after the geographic information has been received");

- guiding vehicle steering in a direction of travel (fig. 2, #39; col. 10, lines 20-30) with compensation data based upon vehicle velocity and altitude (col. 1, lines 30-41) such that an actual path of the vehicle follows a target path (col. 11, lines 10-20);

Froeberg does not specifically disclose estimating at least one of roll data and pitch data corresponding to the particular location and guiding the vehicle according to this data. Further, Froeberg does not specifically disclose guiding the vehicle with respect to an aspect representing the direction of maximum slope of ground with respect to a reference point of each cell traversed by the vehicle. However, Staub teaches guiding a vehicle according to a maximum slope corresponding to a particular location (fig. 4 and col. 4, lines 45-60). In addition, Froeberg discloses "speed heading and altitude correlation values may be modified to take into consideration speed limits, the curvature of each path, path geometry, and expected vehicle dynamics" modeled from collected data (col. 10, lines 35-40). One of ordinary skill in the art would understand that vehicle dynamics include pitch angle and roll angle data. Further, one of ordinary skill in the art would understand that path curvature and path geometry include such aspects such as the maximum slope of the ground. Therefore, it would have been obvious to one of ordinary skill (e.g., a control engineer) in the art at the time the invention was made to guide the vehicle according to an aspect that represents the direction of maximum slope corresponding to a reference point for each cell for the advantage of reducing roll of an agricultural vehicle, as is specifically taught by Staub (col. 4, line 50-56).

With regard to claim 25, fig. 4 discloses an arc path segment.

Claims 28 and 30 are merely the methods by which one of ordinary skill would normally calculate pitch and roll angles.

With regard to claim 41, one of ordinary skill in the art would understand that radial angle is merely another means of expressing a combination of roll and pitch angles.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Deandra M Hughes
Primary Examiner
Art Unit 3663